inches, at Norfolk, Va., 30.14 inches, and at a point near latitude 41°, longitude 56°, 30.20 inches. The steep gradient was responsible for winds of gale force at different points along the American coast between Newfoundland and Georgia. On the 11th the center of this LOW was near St. Johns where the barometer had fallen to 29.40 inches since the previous day; the wind had diminished in force, and was light to moderate.

On the 12th moderate gales were reported about 8° east of Bermuda, and also over the eastern part of the steamer tracks.

On the 13th a point near latitude 45°, longitude 41°, was the center of a violent disturbance. (See chart IX.) The Danish steamer *Helig Olaf*, reported that at 5:15 p. m., March 13, while near latitude 47°, 45′, longitude 38°, 50′, the barometer reading was 28.87 inches, and the wind blowing with hurricane force from the southwest, shifting shortly afterward to the northwest. On that day reports were received from vessels between the 35th and 50th parallels and 35th and 60th meridians, showing that winds of gale force were prevalent over a large part of that region. This LOW moved rapidly northeastward, and on the 14th, the center was near latitude 55°, longitude 30°; the storm area had contracted since the previous day, although southwesterly winds of from 40 to 65 miles an hour were still encountered between the 45th and 55th parallels, and the 30th and 40th meridians.

From the 15th to the 20th moderate weather prevailed, the pressure being comparatively high over the entire ocean, except that on the 19th and 20th readings of less than 30 inches were recorded by vessels near the European coast, and also at the British and French meteorological stations.

From the 21st to the 24th a few scattered reports were received from vessels along the American coast, denoting moderate northeasterly gales, while these were interspersed with many that experienced winds of less than gale force, some of them also reporting fog. On the 21st the barometric reading at St. Johns, N. F., was 30.50 nches and at Bermuda, 29.70 inches. However, the unusually steep gradient, and the complete reversal of the normal distribution of pressure, seemed to have little effect on the general weather conditions in the intermediate region where only light to moderate winds prevailed.

By the 25th, the barometer at St. Johns had fallen to 29.20 inches, and the center of a well-developed LOW was about 250 miles south of that point, while northwesterly gales, with snow, were encountered by vessels in the southwest quadrants. This disturbance remained nearly stationary during the next 24 hours, and on the 26th westerly winds of gale force were encountered between the 35th and 45th parallels and the 55th and 60th meridians.

From the afternoon of the 27th to the morning of the 30th an exceptionally severe storm swept the American coast between Hatteras and Nantucket. The observer on the American steamship *Amolco* stated in the storm-log that the lowest barometer reading was 29.35 inches at 6 p. m., on the 27th, when the vessel was near latitude 35° 8′, longitude 73° 21′, and at 11:45 p. m. on that date the wind shifted from south to northwest, and remained in that quarter until the end of the storm on the 30th, while the highest velocity of the wind was 57 miles an hour. The Dutch steamship *Bawean*, first ran into this blow on the 28th, and the lowest barometer reading was 29.15 inches at 1 a. m. March 29, latitude 35° 6′, longitude 69° 14′; highest velocity of the wind 55 miles an hour, with no shifts. At the time of observation on the morning of the 28th, northwest gales of from 50 to 65 miles an hour, accompanied by snow in the northern portions, swept the coast between Hatteras and New York, and the anemometer at the latter station registered a maximum velocity of 93 miles an hour, during the night of the 28th. On the morning of the 29th, the storm still maintained its force, and did not begin to diminish appreciably until the 30th, and even on that day moderate gales were reported between the 35th and 40th parallels, and the 60th meridian and the American coast. (See chart IX.)

## NOTES ON WEATHER IN OTHER PARTS OF THE WORLD.

### FLOODS IN BRAZIL.

Rio de Janeiro, March 18, 1919.—"Various localities in Brazil are suffering from floods. The town of Joazeiro, State of Bahia, is inundated and thousands of houses have been wrecked by the water. The rivers in various parts of the republic are above flood stage and considerable damage is resulting."—*Associated Press.*

### BRITISH WEATHER, MARCH, 1919.

A large anticyclone maintained a fairly normal position over the south of the North Atlantic, but at frequent intervals there was a second high-pressure system, sometimes in the Icelandic region, at other times over northern Europe. In these circumstances, the British Isles were exposed to numerous disturbances.

In the first 10 days of March rains were generally heavy; at Greenwich, in the three days ending March 5, the rainfall measured 1.49 inches, which is 0.03 inch more than the 60 years' average for the whole month.

The second half of the month was much colder than the first, the difference being 7° F. at Greenwich. Between the 23d and 26th, sharp frosts were experienced in all districts; and on the night of the 28th–29th the heaviest snowstorm of the winter occurred, the snowfall exceeding a foot in parts of southern England.

The general rainfall expressed as a percentage of the average was: England and Wales, 196; Scotland, 105; Ireland, 112.—*Symons's Meteorological Mag., Apr., 1919, p. 33; and Nature (London), Mar. 13, p. 30, and Apr. 3, 1919, p. 90.*